1.0 INTRODUCTION

Kvaerner Environmental has prepared this Site Closure Report (SCR) for the U.S. Army Corps of Engineers (USACE). It describes excavation, disposal, and monitoring activities implemented to remediate soil contamination at a concrete trough and drywell, known as the Paint Shop Subsite of the TNT Leaching Beds Area Remediation project. This work was performed during the period of March 30, 1998 to June 10, 1998.

The purpose of the SCR is to provide detailed descriptions of remedial activities implemented under the Preplaced Remedial Action Contract (PRAC) number DACW05-94-D-0016, Task Order No. 0022. The SCR describes the following:

Construction equipment and methods used in the excavation, stockpiling, and transportation/disposal of the contaminated material.

Monitoring implemented to protect the environment and construction workers against exposure to airborne dust and vapors during all phases of the project.

The results of both the waste characterization and confirmation sampling .

Selected photographs of remedial activities are provided in appendix E. Appendix A, B, C contain waste profiles and manifests, confirmation sampling results, and certificates of disposal, respectively.

2.0 PROJECT AND SITE DESCRIPTION

2.1 Site History

The Paint Shop Subsite consists of a concrete trough and drywell which were used to dispose of wastewater from a former paint shop in the 1940s and 1950s. Wastewater suspected to be mixed intermittently with solvents was presumably washed down sink and floor drains at the former paint shop facility and transported by a concrete trough and/or metal pipe to a drywell located approximately 100 feet east. Soil contamination was identified in the immediate vicinity of the drywell. Various volatile organic compounds (VOC), semi-volatile organic compounds (SVOC) and polyaromatic hydrocarbons (PAH) were identified as contaminants of concern for the Paint Shop Subsite soil. The targeted soil remediation levels were (1) 1,4-Dichlorobenzene $\leq$ 980 mg/kg and (2) Benzo(k)fluoranthene $\leq$ 0.25 mg/kg

2.2 Site Description

The Paint Shop Subsite is located within the magazine area of the Sierra Army Depot (SIAD), east of the intersection of Main Magazine Road and Workshop Road. The site consists of mostly level ground, with high desert type scrub vegetation. Existing soil is mostly sandy, silty, non-cohesive material, with little organic content. Approximately three to four feet below the surface is a hardpan layer.

2.3 Summary of Work Performed

Contaminated soil was excavated and removed from the site for treatment by incineration. The major work activities were as follows:

Established a temporary stockpiling area and decontamination facility.
Delineated the surface area of contaminated soil to be excavated.
Excavated, pressure washed, and disposed of the concrete trough and metal pipe. This material was hauled to an ordinary solid waste landfill.
Excavated approximately 116 cubic yards of contaminated soil and stockpiled under cover. Excavation was made to a depth of ten feet.
Confirmation samples were collected at the walls of the excavation.
Conducted laboratory soil analysis on soil stockpile for characterization.
Hauled contaminated soil and disposed at an incineration facility.
Decontaminated all equipment.
Backfilled the former drywell with clean borrow material placed in 8" lifts; compacted to $\geq$ 90% of laboratory maximum density.

3.0 DESCRIPTION OF REMEDIAL ACTIVITIES

3.1 Well Excavation

Following mobilization and preparatory inspections, a temporary stockpile area, equipment decon facility, and a personnel decon facility were constructed on the existing concrete slab. These areas were constructed using 30 mil liner material and bales of alfalfa to form the containment areas. Decon water was trucked onto the site in barrels from an adjacent project area. A generator and pressure washer were located next to the decon facility.

After site preparation, excavation of the well began. All work from this point on was performed in Level C personnel protective equipment. A Cat 416B Backhoe was used for excavating the material. The soil was loaded directly into a Case Loader with a 4 cubic yard bucket. This prevented any contact with non-contaminated areas. The excavated area measured twenty feet in diameter to a depth of ten feet. The existing soil proved able to support a nearly vertical excavation. Approximately 120 cubic yards of material was removed. The contaminated material was taken directly to the stockpile area where it was placed on 30-mil polyethylene sheeting. After placement of the material it was covered with 20-mil sheeting and secured with sandbags.

An explanation of the sampling methods used is provided in section 3.4.

3.2 Trough Removal

The trough and pipe was removed using the backhoe, and again loading directly into the loader bucket. The concrete was pulled up as cleanly as possible, and then was pressure-washed in the bucket. By holding the bucket over the equipment decon containment area, all the rinsate was able to be contained. This rinsate was later distributed in the dry soil stockpile, for disposal with the soil. No soil was to be removed from below the trough. After removal of the trough the ground was leveled and returned to the pre-existing condition as closely as possible.

3.3 Material Disposal

After results of the characterization samples were received, Laidlaw Environmental Services was contracted to transport the material to their incineration facility in Aragonite, Utah, for destruction. A total of six truckloads of material were hauled. The loading operation was performed in level C protective clothing, and again the Case Loader was used to load the trucks. All trucks were securely covered before proceeding to the weigh scale located just outside the magazine area at SIAD. Standard manifests were prepared using the weight indicated from the scale. The USACE representative provided the generator's signature. (Copies of the completed manifests are provided in appendix A.) The Certificates of Disposal indicate that the material was incinerated during the period of June 9 through June 14, 1998.

The washed concrete was transported by Kvaerner Aronson to the local landfill (Lassen County Landfill), located just outside the SIAD perimeter. This material was classified as non-hazardous, and therefore no manifesting was required.

3.4 Sampling and Monitoring

Soil sampling conducted for the work consisted of confirmation samples collected from the boundaries of the excavated well and characterization samples collected from the stockpiled material. Air monitoring was performed to determine if downgrading of the Level C personnel protective clothing could be made.

The confirmation samples were collected from the walls and floor of the excavation. One sample was collected from five feet below grade on the north, east, south, and west face of the excavation. The sample material was retrieved in the backhoe bucket and then transferred into an 8 oz. sample bottle by the sample technician. Two more samples were collected from the bottom of the excavation in the same manner. The results of these six samples are presented in appendix B. Laboratory analysis was performed for volatile organic compounds (VOC), semi-volatile organic compounds (SVOC), and polyaromatic hydrocarbons (PAH). The methods used were EPA 8020 and EPA 8310. The level for the contaminates of concern was below the highest acceptable limit, in all cases. In fact, all samples collected after excavation were below the lower detection limits of 25 mg/kg for 1,4-Dichlorobenzene and 0.0034 mg/kg for Benzo(k)fluoranthene.

Remediation Target Levels

Compound	Remediation Level (mg/kg)	EPA Test Method
1,4-Dichlorobenzene	980	8020
Benzo(k)fluoranthene	0.25	8310

Characterization samples were collected from the stockpiled material. Two samples were collected for analysis by Kvaerner's contract laboratory (Kvaerner samples S1-PS-SS-08 and S1-PS-SS-09). An additional sample was collected and sent directly to Laidlaw's facility in Utah, for their analysis. All samples were analyzed on a standard turn-around time frame. Results are presented in Appendix A.

Air monitoring was performed using an LEL/O2 meter and a Photoionization Detector (PID). The testing was performed by Kvaerner's Health & Safety officer.

Readings from the LEL/O2 were never above background. However, because of the high levels of VOC's shown to be present near the excavation and the excavated material, no consideration was ever given to downgrading the level-of-protection. The readings during the excavation ranged as high as 50 ppm (measured at the bucket of the excavator).

3.5 Backfill and Restoration

Upon reciept of analytical confirmation of remediation goals, the dry well area was backfilled with clean, decomposed granite material. This backfill was placed in eight inch lifts and compacted to greater than 90% of maximum laboratory density.